

Experimental Investigation of Some Aspects
of the Problem of Repression:

Repressive Forgetting

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By IJA N. KORNER, Ph.D.

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IJA N. KORNER

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CHAPTER I

Introduction

TO THE psychologist in the field of counseling and guidance, psychological theory is not merely a subject of leisurely speculation, a matter to be settled some time in the future. The practicing psychologist, with his limited technical tools and knowledge, faces an ever-increasing demand from his community to deal with the many problems of individuals who need help in growth or adjustment. The urgent need for his services, the limitation of his tools, the inadequate understanding of human nature—all these factors lead the psychologist to follow each new theory in the field with hope and concentrated expectancy. He asks: Does this new theory add anything to an understanding of my fellow human? Does it assist me in helping him? Is the theory adequately supported by research data?

It often happens that the psychologist, under pressure of the need to help, will resort to applying theories which, though they have demonstrated their value empirically time after time, still have not passed the test of scientific and experimental validation. Many of the theories underlying the present-day philosophy of guidance and counseling are based on a remarkably small amount of research evidence. The problem of psychological theory is further complicated by the existence of various schools of psychology which often put forth different explanations for the same phenomenon.

In the last decade, however, increasing emphasis has been given to the finding of common denominators among the divergent schools. Increasingly, researchers attempt to find connecting links which might lead to an integration of experimental results. Experimental psychologists are becoming more and

more interested in the special problems of psychological theory created by and in clinical situations. Clinical psychologists are eagerly awaiting greater experimental validation of some of the hypotheses on which their daily clinical work is based. The more research of this nature, the deeper will be our understanding of human behavior.

As a consequence, it would seem that future research in this area must be oriented with a view to: (a) meeting the criticism of the main schools of psychological thought; (b) attempting to find common ground and a working hypothesis among the various schools; (c) providing a wider scientific base for psychological theory in current use.

The present research project focuses on the area of repressive forgetting, with these general aims: (a) enlarging clinical understanding, and (b) validating experimentally an important theory of human behavior. The aim and direction of this research project is to validate with experimental techniques and a quantitative analysis some of the contentions of those clinicians who have come empirically to assume the existence of the phenomenon of repression.

SURVEY OF RELEVANT LITERATURE

For more than fifty years experiments have been conducted with the aim of gaining information about and insight into phenomena related to repressive forgetting. Of greatest moment, with respect to the previous research, are the orientation of the experimenters and the frame of reference from which they view the problem, for, as will be shown, these are the very factors upon which interpretations are conditioned.

For purposes of comparison and contrast, the two fundamental approaches may be most broadly classified as: (a) those in which repression is more or less passively determined (the Pleasantness-Unpleasantness orientation); (b) those in which repression is actively determined (the Ego-Involvement orientation).

THE PLEASANTNESS-UNPLEASANTNESS ORIENTATION

Research up to 1938 has been summarized by a number of evaluative reviews, including those of Meltzer [46]* in 1930, Beebe-Center [7] in 1932, Gilbert [25] in 1938, and Barrett [4] in 1938. Some thirty-five principal research studies tabulated by Meltzer and by Gilbert may be grouped into four broad categories:

1. Studies using questionnaires or similar devices to gather the reports of subjects concerning their evaluation and recall of pleasant and unpleasant experiences.¹
2. Studies involving the memorizing of pleasant and unpleasant materials, the affective tones being either rated by the subjects or assumed by the experimenter.²
3. Studies requiring the recall of, or associations with, pleasant and unpleasant odors.³
4. Studies using the galvanic skin response to define pleasantness and unpleasantness.⁴

Most of the earlier investigations suffered from serious procedural faults. Meltzer cited the following shortcomings in previous investigation of the problem: (a) insufficient number of subjects, (b) entire method unreliable (questionnaire studies), (c) aspect of methodology faulty, (d) conditions too narrowly restricted and not sufficiently lifelike, (e) unwarranted assumptions tacitly made, (f) forced or unwarranted interpretation.

* Numbers in brackets refer to references in Bibliography, pp. 53 to 56.

¹ Studies using this general approach were made by Colgrove [17], Kowalewski [35, 36], Anderson and Bolton [2], Wohlgemuth [73], Flügel [22], Meltzer [45], Jersild [32], Cason [14], Menzies [47], Waters and Leeper [69], Stagner [65].

² Chaney and Lauer [16], Sharp [60], Flanagan [21], Cason and Lungen [15], Stagner [66], Silverman and Cason [63], Gilbert [24], Barrett [4], Carter [12, 13], White [71], White and Powell [72].

³ Gordon [26], Anderson and Bolton [2], Frank and Ludvig [23].

⁴ Jones [33], Smith [64], Bunch and Wientge [9], Balken [3], Lynch [40].

Gilbert [25], in analyzing the studies made from 1929 to 1937, found them to be virtually free of the faults pointed out by Meltzer. However, he stressed that in the evaluation of the hypothesis of hedonistic selectivity the following additional considerations would have to be taken into account: (1) While delayed recall generally affirmed the main hypothesis, immediate recall was a special case not applicable to the theory of repression of unpleasant memories; (2) the age of the subjects required greater control, since children showed no reactive forgetting to affectively toned material.

Relatively few studies have appeared since Gilbert's tabular survey of the literature in 1938, and it is possible to treat them in some detail.

Pintner and Forlano [54], in 1940, subjected a group of adults to an immediate retention test of lists of paired numbers and words. The results showed a 24 per cent loss of retention for pleasantly toned words, 29 per cent loss of retention for unpleasant words, and 27 per cent for neutral words. This study does not heed Gilbert's reservation on the validity of immediate recall.

In Barrett's study [4], in 1938, thirty women college students recorded, by means of disconnected words written during a 30-second interval, all their associations for each of twenty-six words. An intensity scale for the hedonic tone associated with each word was established. Twenty-six of the thirty subjects recalled more pleasant than unpleasant words in a recall test given one week later. The group average for the recall of the associations of the pleasant words was reliably greater than that for the unpleasant words. Barrett suggested that a "mental set operating either at the time of presentation or at the time of recall, or both, might account for the differences found." (p. 51)

Positive results were obtained in 1940 by O'Kelly and Steckle [51], who asked ninety-six college students to recall upon their return for the first day of classes all the events of Christmas vacation and to label them pleasant or unpleasant. Ten weeks later they were required to recall the same events. On the second recall, 48 per cent of the original pleasant and 40 per cent of the

unpleasant events were recalled. The differences were statistically reliable.

Lanier [37] prepared a list of fifty stimulus words which were presented orally to individual subjects who responded to each word with one of the following four affective terms: pleasant, unpleasant, indifferent, mixed. Reaction time and the galvanic skin response were measured for each judgment. Two minutes after completion of the experiment, the subject checked the stimulus words recognized among a list of 200 words. The recognition test was repeated one week later. The results showed that words high in galvanic skin response value tended to be remembered better, irrespective of their affective character. Another experiment by Lanier [38] yielded no significant relation between affective tone and memory.

The notable decline in studies oriented along the lines of pleasant and unpleasant approach is not accidental. Rather is the gradual disappearance of the whole Pleasantness-Unpleasantness approach attributable to certain fundamental defects and shortcomings which have become ever more manifest. Indeed, Sears's succinct yet comprehensive appraisal of the body of experimentation just considered points up convincingly the need for a very qualitatively different approach to this whole area of study. Sears [58], in 1936, wrote:

Although several attempts have been made to relate studies of the effects of feeling on memory to the repression hypothesis, such interpretations are open to serious error. First, no distinction has been made between the two very different processes of primal repression and repression proper, and second, a false assumption has customarily been made concerning the identity of U(npleasant) activities with repressive activities. . . .

The following general criticisms of the bulk of the experimental literature on the relation between feeling and memory may be made in so far as its relevance to the repression hypothesis is considered:

1. The assumed identity of *U items* and *items which can induce primal repression* is an entirely false assumption. No evidence has been adduced that there is any degree of correlation between the two.

2. The *a priori* assumption that *U* objects or words are more apt to have been previously associated with behavior sequences in which repression occurs, thus making them more susceptible than *P*(leasant) objects to repression proper, is unwarranted; there is reason to believe that associates of many *P* items (*e.g.*, odors) would be more susceptible to after-expulsion than the associates of many *U* items.

3. In experiments involving recall of personal experiences it is doubtful whether many of the experiences which normally lead to repression were present in the original descriptions of experiences; only under rather exceptional experimental conditions can it be expected that subjects will describe those experiences which have a sufficiently strong emotional association to make for repression.

THE EGO-INVOLVEMENT ORIENTATION

Motivated by a distinctly different set of theoretical considerations are several studies, which, while concerned primarily with other aspects of personality study, nevertheless shed invaluable light on the phenomenon of repression. They have in common the fact that they assume an actively operating ego which structures its material according to its needs. The studies reviewed below, for example, introduce such concepts as value, significance to the subject, ego-involvement, and ego-threat.

Zeigarnik [74], in 1927, asked herself: Are completed tasks forgotten more or less than incompleted tasks? The author felt that this question approached the problem of forgetting in a very lifelike manner. The author used about 150 children as subjects. Half of them were tested individually, the other half in group experiments. She presented subjects with eighteen to twenty-two different little tasks: to write a poem, to draw an artistic combination of initials, to cut out paper, to count from 50 backwards. At some of these tasks, the subjects were interrupted; at others, they were given an opportunity to finish. After two days, the subjects were asked to recall the various tasks. Miss Zeigarnik reported that the unfinished tasks were retained better, in fact twice as well, as the finished ones.

Maria Zillig [75], in 1928, used a very original approach. Twelve aphorisms concerning women were read to a group of twenty men and twenty women. It was found that 50 per cent of the men and 53 per cent of the women remembered more favorable than unfavorable statements as against 50 per cent of the men and 41 per cent of the women, who remembered more unfavorable than favorable statements. The women remembered more favorable statements about themselves.

Koch [34] made a new approach to the problem in 1930. A

group of college students were given a series of quizzes which were then graded and returned. The subjects were asked to rate each grade received on a scale of one to five as to degree of their satisfaction or dissatisfaction with the grade. The papers were again collected. Five weeks later the students were asked to recall all ten grades and the rating. The "one" rating was best recalled, with "two" or "five" being recalled next best. A significant finding was the fact that whether "five" was recalled or forgotten depended upon the degree to which the student viewed it as a truly dangerous threat to passing the course. The results favored a theory of repression but indicated, too, that other factors, such as a threatening environment, are important in determining "recall behavior."

Huston, Shakow, and Erikson [30] attempted to test the validity of the Luria method of detecting affective conflicts. A "complex" was induced hypnotically on a group of four male and eight female subjects, and verbal, voluntary, involuntary, and respiratory responses were studied. Data collected from repeated sessions on the same subject indicated a "shock" effect, appearing chiefly in the first session, which was manifested by a large number of motor disturbances. Subjects showed a gradual decline in motor disturbances from day to day, which pointed to an "abreactive" factor or a forgetting factor.

Rosenzweig and Mason [55], in 1934, and Rosenzweig [57], in 1941, conducted experimental studies of memory in relation to the theory of repression. A series of jigsaw puzzles was presented to a group of young children; each subject was permitted to complete only half the puzzles. The children were later asked to recall the names of as many of the puzzles as possible. Children rated low in pride recalled more uncompleted tasks, while those having a good deal of pride recalled more of the completed ones. Children who feared punishment for failures showed this by resorting to repression as a defense.

These investigators presented to two groups of Harvard students similar puzzles under the same conditions. One group was told that the experiment involved a test of mental ability; the other group that the properties of the puzzle, not the sub-

jects, were being tested. The group who felt on trial recalled a much larger proportion of completed tasks, while the other group recalled more uncompleted ones.

H. Margulies [41], in an unpublished Master's thesis (Columbia University, 1938), attempted to evaluate the affective attitude of whites to the Negro race by testing recall of favorable and unfavorable prose material concerning Negroes. Sixty per cent of both Northern and Southern subjects remembered more favorable than unfavorable statements about the Negro.

Sharp [61], in 1938, selected two lists of words from the case histories of a group of neurotics; the words of one list related to serious emotional problems of their lives, and the words of the other list related to sources of gratification. These were structured into two lists of paired associates equated as to learning difficulty and used as learning material for the same neurotic patients. The list relating to gratification was better recalled after two days and after three weeks. Unacceptable material which showed no repression at the end of the two-day interval was also recalled after the three-week interval. Acceptable material exhibited slight repression for the two-day interval and showed reminiscence for nine- and 16-day intervals. Similar results were obtained with the same lists of words from a group of normal adults, the words referring presumably to sources of anxiety or gratification fairly universal in society at large. Negative results were obtained, however, by Heathers and Sears [28], in 1943, in a similar experiment with a group of normal subjects.

Levine and Murphy [39], in 1943, presented to five pro-Communist and five anti-Communist students anti-Soviet and pro-Soviet paragraphs. Over a nine-week period the learning and forgetting curves showed each group to excel in learning and retaining ideas fitting its own attitudes. The more violent paragraphs produced greater group differences in recall, and memory divergence increased with time.

Wallen [68], in 1942, conducted a study of considerable pertinence to the present research. A "rated" group of eighty-four subjects and a "non-rated" group of twenty-seven were

given a check list of forty adjectives with a view to obtaining some measure of their self-evaluation. About a week after the self-ratings, each person in the "rated" group was given a sheet containing his name and a set of numbered spaces marked plus or zero. The subjects were then told that they had been rated by some person who knew them and that these sheets contained the record of the rating. Subjects were requested to look at their own paper while the experimenter read the list of trait words corresponding to the numbers, so that each subject could see which traits had been attributed to him by his rater.

The ratings were not genuine. Actually, they had been constructed by systematically changing the self-ratings. The "bogus" rating, as distinguished from the self-rating, was what the subjects were asked to recall. The bogus rating was presented as genuine. The recall of the bogus ratings tended to be altered in such a way as to make them more compatible with the subjects' opinions of themselves. It was pointed out that this result could not be attributed to different degrees of mastery of the various parts of the remembered material. An interpretation in terms of organization dependent upon stresses arising from the ego field was offered, and its implications were discussed.

A study using a procedure similar to that of Wallen [68] was reported by Shaw [62] in 1944. One part of Shaw's hypothesis held that, other things being equal, there will be fewer errors in recall when the evaluation by the alleged rater is favorable than when it is unfavorable. The second hypothesis was that, other things being equal, there will be fewer errors in recall when the alleged rater's opinion of the subject agrees with the subject's opinion of himself than when it disagrees. The evidence indicated that the subject's estimate of the desirability or undesirability of a trait had no differential effect upon recall of bogus ratings. Errors in recall were much fewer when the subject's opinion of himself and a favorable evaluation agreed than when disagreement and an unfavorable evaluation existed. The authors pointed out that the better retention of items which agree with a subject's opinion of himself might be the result of better

assimilation of the items in the first place. Mowrer's conception of the role of anxiety in learning was cited to explain the better retention of favorable evaluations.

Bartlett [5] conducted extensive experimentation over a number of years. In one study subjects read short passages and then reproduced the contents from memory repeatedly at intervals of increasing length. The most immediate reproduction was given fifteen minutes after the first reading, and for one subject the last reproduction was given six and one-half years later. The form and style of the first and most immediate reproduction persisted generally in succeeding reproductions, but there was a progressive tendency to simplify, to omit details, and to alter the material into more familiar and convenient form. Introspective reports showed that subjects were often unconscious of the condensation that was going on. Bartlett's results showed that as time passed details were forgotten, but they were not merely worn away; they were altered and reorganized, and often the subject did not recognize that this alteration was occurring. Memory is thus primarily reconstructive and not merely reduplicative.

CHAPTER II

Theories and Theoretical Considerations

A READING of the preceding chapter reveals the fact that most experiments have been more concerned with method than with theory. Few approach the problem of the dynamics and causality of repressive forgetting itself. Few studies raise the question: Why do we forget? How does repressive forgetting occur?

The whole area of investigation, it appears, has been to a considerable extent a battleground on which the protagonists and antagonists of psychoanalytical thinking have tried to prove and disprove each other's contentions. Only the last two decades brought about the formulation of theories which attempted to interpret some causes and effects of repressive forgetting rather than to illustrate and demonstrate its existence.

When psychology faced the need to interpret the phenomenon of forgetting, it was stated that forgetting was a function of the amount of time which had passed. Time was regarded as having worn away the traces of memory in the brain. Forgetting was a kind of eraser passing over the penciled words on a page. The need for amplifying and amending this concept soon became evident. How, for instance, did it happen that of two events occurring and perceived at the same moment, one would be remembered and the other forgotten? The traditional answer was that one of the two events must have left a "stronger" impression. This soon was found to be true in many instances, and the laws of forgetting were accordingly revised and enlarged and the concepts of primacy, recency, intensity, and frequency introduced to explain some of those aspects of the phenomenon which were not covered by the "erasure-through-time" assumption. More and more objections and doubts were raised against

the "forgetting-through-time" theory, and laboratory psychology began to recognize the importance of such factors as the interests of the individual and his needs.

Increasingly it was felt that forgetting was anything but simple, that the factor of "passage of time" was a secondary one, and that the primary factors were the needs of the individual and his attempts to satisfy them. Forgetting, then, was viewed as an important tool, dependent on these primary factors.

When an individual was incapable of remembering material which he could usually remember, the following question was formulated: Where was the material at the time it was unavailable? As it was available before this failure to remember and would be available again, with or without outer help, where was the material during the period of unavailability? Most people believed that it was located somewhere in the nervous system. Psychologists for a long time had given names to these neural residues, among which are the following: neural schemata, engrams, neurograms, imaginal processes, and the most used of all—traces.

The existence of traces could not be demonstrated but was assumed on the basis of many observations. It seemed fairly well established that a trace was not the property of any particular neuron or any specific neural junction. It appeared that all parts of the cortex were alike in their potential capacity for certain kinds of learning and memory. The war years have given us occasion to observe many cases where the extirpation of considerable parts of the cortex did not result in the total extinction of specific memory units, as could have been expected. It seemed that memories were distributed over the whole cortex rather than located in their entirety at given points. Two assumptions were made by psychologists at this time:

1. "Simple forgetting" is the gradual destruction of traces by metabolic processes.
2. Traces in proximity become associated with each other.

The Gestalt school represents the view that "tension" comes into existence between traces. These tensions function in

such a way as to keep certain traces unconscious. Tensions might change the nature of traces by making them enter into functional relationship with other traces. In this case forgetting becomes alterative and subservient to the needs of the individual.

The psychoanalytical contribution to the problem is the concept of repression, the exclusion of painful and unpleasant material from consciousness and motor expression. When ideas which had been unconscious were brought into consciousness, it was found that they usually were connected with strong impulses. Impulses appeared, or wanted to appear, in consciousness because they were striving for gratification. Some of the ideas were recognized as having appeared in consciousness earlier and were thrust down into the unconscious by the process of repression. The force keeping the repressed ideas and connected feelings out of consciousness must by necessity be a constant one. The repressed ideas, at the same time, have a need and corresponding drive to reappear in consciousness. Psychoanalysts believe that this force, which is constantly at work in the process of repression, comes from the seat of the instincts, which they call the *id*. Psychoanalysts always speak of the motive of repression and, for therapeutic reasons, are very interested in it.

Experimental psychologists, dealing with the general problem of memory, were interested in the theory of repression as a means of coming closer to an adequate understanding of the problem of forgetting. Many psychologists who rejected the psychoanalytical concept of instinct nevertheless accepted the theory of repression, though giving the motivation of repression another interpretation. Efforts have been made by this group to restate the phenomenon of repression in objective terms of stimulus, response, facilitation, inhibition, and conditioning.

The problem of the relationship of repression to pleasantness and unpleasantness has been dealt with in the excellent discussion by Sears, noted in the previous chapter. Two outstanding facts have been brought out in connection with this problem: (1) repression was unnecessarily identified with the effects of pleasantness and unpleasantness; and (2) pleasantness and un-

pleasantness have been very differently interpreted by authors representing various schools of psychology. Experimentally it was in no way possible to determine whether pleasantness or unpleasantness was the true emotional reaction toward a given material, event, or memory. It seemed a warranted conclusion that any approach based on an attempt to determine whether material had any historically pleasant or unpleasant connotation would invariably lead into a jungle of scientifically unanswerable questions and speculations.

It was felt that the problem of pleasantness and unpleasantness was not necessarily linked with the problem of repressive forgetting. It seemed possible to create and observe conditions favoring repression without calling or defining these conditions as unpleasant. The problem was considerably simplified by merely attempting to determine those conditions favoring repression, but it proved to be extremely difficult to define or describe these conditions. Again there was wide disagreement between analytically oriented and experimental psychologists.

The analytically oriented group accepted Freud's theory of repression, summarized by James G. Miller [48] as follows:

Two kinds of repression of ideas connected with instincts have been distinguished by Freud. The first is primal repression, denial of entry into consciousness of any thoughts related to instinctive desires; the second is after-expulsion, forcing into forgetfulness thoughts which have already been conscious. The goal of every sort of repression is to eliminate instincts entirely from having effect in action. This goal is rarely achieved, and the instincts frequently influence behavior, ideation, or emotion, although less than they would influence it if they were not repressed.

The experimental psychologist's view is described by Laurence F. Shaffer [59]:

From the objective point of view, repression can only be described as a failure to make a certain response, when the stimuli are presented that might be expected to evoke it. . . . The failure to recall a repressed response is due, not to extinction, but to the more positive process of *inhibition*. In the initial experience underlying a repression some object, name or event occurs simultaneously with a response of shame or guilt and thereby becomes connected with it. Since most persons have learned to make an avoidant response to shameful or guilty feelings, which are a form of fear of social disapproval, the recall of the painful event will be

avoided. This is accomplished by means of the inhibition of the recall, by the avoidance of external stimuli that would arouse it and by making substitute responses that serve as distraction activities. The inhibition of recall involves no more theoretical difficulties than does the inhibition of motor response. . . . Since recall is a response to a stimulus, an individual can learn through painful effects simply not to make the response of remembering.

The two approaches to the phenomenon of repression seem considerably at variance; nevertheless there is agreement between both schools of thought that repression will occur under conditions when there are:

1. Ideas damaging to the ego (concept of self) of the individual.
2. Promptings in disagreement with the individual's own moral, cultural, and social concepts.
3. Material associated with conflicts which are anxiety and guilt creating.

These conditions are not mutually exclusive; on the contrary, they tend to be concurrent. These criteria, though inadequate, oversimplified, and incomplete, offer a basis for an experimental approach. If it were possible to induce in individuals ideas associated with the criteria mentioned above, these ideas should show a considerable tendency to be repressed. It seemed possible to create repression experimentally by presenting to the individual material which was associated with ideas damaging to the ego, promptings which were socially nonacceptable, and material which was conflicting and painful.

CHAPTER III

Experimental Design of This Study

FREQUENT objections to investigations of the phenomenon of repression have made it clear that the fundamental approach to the problem must be changed. The following paragraphs consider the conditions under which the present study was conducted, for it seemed that any new investigation of repressive forgetting must meet essential conditions such as these.

In order to cope with the problem of too laboratory-like a situation, the present study was conducted in groups in which the natural setting of a lecture in psychology facilitated not only the introduction but also the conduct of a major part of the experiment.

Another important consideration was that material, assumedly unpleasant, may actually have unconscious *pleasant* associations. The so-called "unpleasant" material, then, is not subject to repression, but still may be avoided by the subject, thereby giving rise to the erroneous speculation that it was repressed. Material created by the experimenter, given alike to all subjects, could not take into account the individuality of the subjects, their many idiosyncratic likes and dislikes, their fears and wishes. In order to avoid social and individual inhibitions toward the test material, the subjects, rather than the experimenter, created the material.

No adequate experimental method is available at present for detecting material which the individual keeps repressed. The investigation of repressive conditions is hampered by inadequate definition of repressed material. This experiment attempted to create conditions, defined in advance, under which parts of the material were made subject to repression. The repressive con-

ditions were due to the effect of the threat which the material constituted for the individual's ego.

The experimental design of this study was shaped with reference to these considerations.

EXPERIMENTAL GROUP PROCEDURE

Students of a class in psychology were given eighteen stimulus sentences which they enlarged into eighteen short stories. To each story, the subjects gave, in addition, a short title. Three days later the papers were returned and interchanged among the subjects. The subjects rated each other's stories as to the presence or absence of signs of personality unbalance. Four days later each subject was told that his stories had been rated by three experts in psychology. He was made to believe that six among the eighteen titles indicated a lack of balance in his personality and that six others indicated a good personality balance. Six of the titles were left unmarked. The subject was required to learn the eighteen titles to one perfect recall. Four days later the subjects were asked to recall as many of the titles as they could remember.

CONTROL GROUP PROCEDURE

A control experiment was performed under conditions identical with those of the first experiment except for the omission of the rating of the stories by the subjects, the markings, and the implied threat to the security of the individual.

EXPERIMENTAL GROUP X PROCEDURE

An experiment was performed under conditions identical with those set up for the experimental group except for the accidental method of selection of subjects for this special group (X), which yielded subjects for whom the proper conditions for repression could not be created.

THE SUBJECTS

The subjects in all three groups were college students with an age range of 19-38 years and a sex differential of 56 per cent

female and 44 per cent male. (The reason for this selectiveness will be discussed in Chapter V.) The experimental group included forty-nine subjects, the control group thirty-seven, and the X group twelve. All were full-time students in a regular winter and summer semester at either Brooklyn College or Teachers College, Columbia University.

The experiment took place during a course called "Introduction to Personality" at Brooklyn College and a course with a similar title at Teachers College, Columbia University. The courses were on an introductory level, and the subjects were virtually unfamiliar with the field of personality.

The groups participating in the experiment never comprised more than twenty-five students. The interrelationship between the students and their instructors was considered good but not exceptional, as evaluated by statements by the subjects and the instructors.

Great care was exercised to create an impersonal, scientific attitude toward the experiment. It was stressed that the results of the test would in no way influence grades or any aspect of the didactic relationship.

THE TEST MATERIAL

In order to have the material furnished by the subject himself, a projective technique was employed. Eighteen stimulus sentences were given to each subject, the presentation being preceded by detailed instructions. The stimulus sentences were simple and of approximately even length (between seven and twelve words). The eighteen stimulus sentences were arranged on five pages, the directions and three stimulus sentences being printed on the first page. Four stimulus sentences were printed on the second page, four on the third, four on the fourth, and three on the fifth page. The subject was asked to write a "little story," not longer than three or four sentences, around the stimulus sentence. No clue was given as to the nature of the story, beyond the meaning and sense of the stimulus sentence. Following are some of the stimulus sentences which were used in the test:

- No. 1. What a wonderful day it has been.
(seven words)
- No. 6. "7 miles to the next village," the sign said.
(nine words)
- No. 13. He was a serious man; all about him was serious.
(ten words)

The stories represented the voluntary and spontaneous production of the subject. It may be assumed that material subject to repression was to a large extent absent from the stories. The stories met many of the demands for experimental material as initially voiced, but they were too long and lacking uniformity to be used for experimentation. It was necessary to condense them to uniform length, at the same time keeping their individuality.

Again it was deemed necessary to have the subject structure his own material. He could shorten the story by compressing its meaning into a three-word title, which would then be a sort of subject-chosen symbol for the whole story. The title could be utilized in experimentation in lieu of the whole story. The three-word title would, moreover, yield relative uniformity of length of material, namely, three words. The subject, therefore, was asked to give to each of the stories a three-word title. Great care was used to emphasize that the title should contain three words, no more and no less.

The test, consisting originally of eighteen stimulus sentences, furnished eighteen projective stories and eighteen corresponding story titles. After the situation for exogenously-induced repression had been created, the eighteen story titles were presented to the subject, who learned them to one perfect repetition. (The procedure will be described in the next chapter.) In order to be able to present the titles for learning, special measures had to be taken. The five pages containing the eighteen stories were cut into eighteen individual slips of paper, each containing one story and its title. The story titles could be presented individually and reshuffled after each presentation and thus prevent the establishment of a fixed order of learning.

It was felt that the test which had been created met the criteria established. The procedure took into account criticisms

raised against prior research. It fulfilled the theoretical demands of this investigation. It furnished material which was individual and which at the same time lent itself to experimentation.

EXPERIMENTAL PROCEDURE

The performance of this experiment required four separate steps. Fourteen days elapsed between the first and last part of the experiment.

Step One: A short talk stressing the importance of research in psychology was given to a group of students, who were asked to cooperate fully with the experimenter. The test material was distributed and time was given the subjects for reading and comprehending the directions.

A simple technique permitted the subjects to remain anonymous while the experimenter was able to identify each test and its author. The following directions were read to the subjects:

On the top of the front page you are asked to sign your name. Be sure to do it. If you prefer to remain anonymous, sign with a symbol. Use a circle, a star, an initial. In this way I shall know you only by your symbol and not by your name. Be sure to remember your symbol.

Approximately half the subjects preferred the use of a symbol.

The directions of the test read as follows:

Each sentence is the beginning of a little story. You read the first sentence and finish the story the way you feel it should end. Do not use more than three or four sentences for each story. After you have finished a story, give it a three-word title. Be sure that the title is exactly three words.

Example: He moved in his sleep and then it was quiet again in the room. She watched his sleep and she was happy. *Title:* Sleep, My Love. Go ahead now.

The subjects were asked whether they had any questions concerning the test. After these had been answered, they were instructed to take the test home, finish the stories, and return them to the experimenter four days later. (A complete list of the stimulus sentences and a reproduction of the test are given in the Appendix.)

Step Two: Four days after the first step the tests were collected, and the experimenter read the following explanation:

As you probably have noted, these stories are not just a literary production or exercise. The stories are significant; they carry meaning. If, for instance, one of you was feeling low at the time he wrote the stories, they may contain many indications of these feelings. In general, if you are rather cynical, your stories may well be cynical too. Your stories, because they permitted you to write whatever you wanted to write, tell us, if we can interpret them correctly, many things about your true inner feelings. This is the reason why we consider this test a very good indication of various personality trends of an individual. We are interested in finding out whether we can determine, from stories like the ones you wrote, the degree of stability in your personality. In order to do that, two colleagues and I have worked out a system of ratings and psychological criteria. Your tests will be evaluated according to those criteria. We are, furthermore, interested in determining to what extent individuals having different criteria, or no criteria whatsoever, will be capable of evaluating stability of personality from these stories. I realize that you are not too sure about what you are supposed to do, but please be patient and you will understand.

At this point each student was given one set of stories, but in no case his own set. (The stories did not contain any mark of identification as to authorship.) In addition, each student was given a sheet of paper which he was asked to sign for identification purposes. The students were then asked to read slowly through each story and to indicate on the signed sheet whether the story gave an impression of a balanced or an unbalanced personality. (It was emphasized that the reader's emotional impression was of primary significance.)

After about twenty minutes all the papers and stories were collected. Usually many questions were asked at this point but were left unanswered with the statement that a general explanation of the aims of the test would be forthcoming in one of the next sessions.

It is to be emphasized that this feature of Step Two, viz., confronting the subject with the task of reading and evaluating someone else's stories, was designed to impress upon him the assumed reality of the implications for personality imbalance contained in the stories. Under the circumstances it is probable that apprehensiveness was generated and an amount of tension produced.

Step Three: Between Step Two and Step Three the five pages of the test were separated into eighteen individual slips of paper.

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Each contained one story and its title. Six slips carried a minus sign above the title; six carried a plus sign; and six were left unmarked. The slips of all the subjects were marked identically, each subject having the same stimulus story unmarked, or marked plus or minus.

The third part of the experiment took place three days after the second. Within a span of twenty-four hours each member of the experimental group was interviewed individually by the experimenter.

Upon entering the room, the subject was seated comfortably. The experimenter then gave him a sheet of paper containing the following directions:

I am going to show you the stories you wrote; each one was rated by three professional psychologists for evidence of the stability of your personality. The three psychologists consisted of your instructor in psychology, the experimenter, and another member of your faculty. Their judgment showed a remarkable degree of accuracy.

When all three judgments agreed that a particular story was indicative of a well-balanced personality, a *plus* was marked over the title of the story. In case they agreed that the story contained indications of a somewhat less well-balanced personality, the title of the story was marked with a *minus*. In case they could not agree in their rating, the story was left unmarked.

Now turn to the experimenter, who is going to show you your stories and the way they are marked. Please do not ask him for explanations concerning the markings. Explanations will be given to you a week from today if you so desire.

The experimenter had a list of all the eighteen story titles in his hand. The eighteen slips were shown to the subject, who read the stories and their titles.

Another sheet of directions was then given to the subject, reading as follows:

I would like you to learn the titles of the stories to one perfect repetition. The titles will be shown to you, each for two seconds at a time. At the end of each presentation try to recall as many titles as you can. When you feel that you have exhausted your memory, notify the experimenter and the titles will be presented to you again. This process will be repeated until you will have once recalled all of the titles.

You don't have to recall the titles in the order in which they are presented. Ask questions now: they cannot be answered during the experiment.

The titles of the stories were detached from the stories themselves. Slips containing the titles were then shuffled carefully and presented to the subject, each for exactly two seconds.

After the presentation, the subject recited as many titles as he could remember. The titles were shuffled again, and again presented. This process continued until the subject recalled all eighteen titles. The frequent question, "How many titles are there altogether?" was left unanswered.

Step Four: Four days following the learning of the titles the experimenter met the class again. He distributed a paper to each of the subjects, asking them to sign their names or symbols on top of the sheet. They were then told that they had fifteen minutes' time to recall as many titles as they could remember.

At this point, the papers were collected and the experiment was officially terminated. To deal with some ever-present anxieties, a special session was later devoted to an explanation of the bogus-rating and to a clarification of the aims of the experiment.

THE CONTROL GROUP

The experimental procedure for the control group was identical with that of the experimental group, except for the omission of those steps leading to anxieties, and therefore to repressions. Step Two, for instance, lost its significance and was omitted.

The following is an outline of the test procedure for the control group:

Step One: The subjects were given directions to write stories and titles, the procedure being identical with Step One in the experimental group.

Step Two: The control group did not rate stories. This step was omitted.

Step Three: The unmarked stories were given to the subjects. The directions, shortened, read as follows:

I want you to read the titles of these stories. They are the ones you wrote. Please read them slowly and try to remember as many as you can.

After the presentation, the subject was again told:

Please tell me now as many of the titles as you can remember. Once you think you have exhausted your memory, signal the experimenter and he will show you the titles again. He will repeat this process until you recall all of the titles at once. It is not important in what order the titles are recalled. Any question? Are you ready now?

Step Four: Identical with Step Four for the experimental group.

SUMMARY OF EXPERIMENTAL DESIGN

It was assumed at the end of Step One that the test had created material relatively free from "repressive" propensities.

At the onset of Step Two the subject was informed that his projective stories would be rated. It was stated that the criterion of the rating was an indication of balance or unbalance of the subjects' personality as projected in their own stories. The aim of this step was to make the ratings a reality and a matter of personal concern to the subject. For most of the subjects the idea of ratings represented a threat.

At this point of the experimental design, it was assumed that the conditions for repression had been established. Repressive propensities were potentially spread over all eighteen titles. The subject as yet did not know which of his stories would be rated negatively as being indicative of personality unbalance.

The repressive tendencies had to be superimposed on some of the titles, leaving the rest free of any repressive conditions.

The superimposition was achieved by the marking of the titles. The subject thought that his markings represented a true evaluation of personality structure. In reality, the markings were arbitrary bogus-ratings devised by the experimenter.

The subject was presented with his stories, the titles, and markings. He was asked to learn the titles under conditions in which the learning process was kept as uniform as possible.

If the hypothesis of the experiment was correct, the following result could be expected: The sum of forgetting for all the minus-marked titles of all the subjects should be considerably greater than the sum of forgetting for all the plus-marked titles. In Step Four this hypothesis was tested by asking the subjects to recall as many of the titles as they could.

CHAPTER IV

Statistical Treatment and Findings

THE measure of retention in the experiment was the number of titles recalled by the subjects, each title consisting of three words. Recall of titles in a mutilated form was dealt with in the following fashion: (a) When the mutilation involved only the omission of the definite or indefinite article, the title was considered as being correctly recalled. (b) When one word in the title was replaced by a synonymous word, the recall was likewise regarded as acceptable.

Of the more than 2,000 titles in the experiment, less than one per cent failed to fall in the above categories. This one per cent was classified under the heading "Additional Titles." Subjects added about another one per cent of titles which had not appeared in their original learning list. This latter one per cent did not enter into the statistical treatment.

Eight subjects who for one reason or another had violated the experimental conditions were eliminated from evaluation. Of these subjects, two were eliminated because they had had additional opportunity for learning, two because they had exhibited strong signs of disturbance during the learning process, and four because they had not written the projective stories by themselves.

None of the subjects of either the regular experimental group or the control group recalled all eighteen titles, except two who had indirectly violated the conditions of the experiment, and were eliminated.

As noted earlier, the experimental group consisted of forty-nine subjects, the control group of thirty-seven, and group X of twelve. All the experiments were performed in groups as follows. The experimental groups were:

Group A (23 subjects) at Teachers College, Columbia University (see Table I)

Group B (11 subjects) at Teachers College, Columbia University (see Table II)

Group C (15 subjects) at Brooklyn College (see Table III)

TABLE I

TABULATION OF RAW SCORES OF SUBJECTS OF EXPERIMENTAL GROUP A.

RECALL OF PLUS, MINUS, AND UNMARKED TITLES (18 TITLES:
6 MARKED PLUS, 6 MARKED MINUS, 6 UNMARKED)

Subject	Numbers and Per Cent of Forgotten Titles			Subject	Numbers and Per Cent of Forgotten Titles		
	+	N*	-		+	N*	-
A1	1 6%	2 11%	2 11%	A13	1 6%	3 17%	3 17%
A2	0 0%	0 0%	1 6%	A14	2 11%	3 17%	5 28%
A3	1 6%	3 17%	2 11%	A15	4 22%	3 17%	5 28%
A4	2 11%	2 11%	4 22%	A16	3 17%	4 22%	4 22%
A5	1 6%	0 0%	0 0%	A17	2 11%	0 0%	2 11%
A6	2 11%	1 6%	2 11%	A18	1 6%	1 6%	1 6%
A7	3 17%	3 17%	4 22%	A19	1 6%	0 0%	2 11%
A8	2 11%	1 6%	0 0%	A20	3 17%	2 11%	3 15%
A9	2 11%	1 6%	0 0%	A21	3 17%	3 17%	4 22%
A10	0 0%	1 6%	1 6%	A22	0 0%	1 6%	0 0%
A11	0 0%	1 6%	1 6%	A23	1 6%	0 0%	0 0%
A12	2 11%	3 17%	4 22%	N = 23	37 8.94%	38 9.18%	50 12.32%

* N signifies the unmarked titles.

The following control groups were tested:

Group M (29 subjects) at Teachers College, Columbia University (see Table V)

Group N (8 subjects) at Brooklyn College (see Table VI)

The special experimental group was:

Group X (12 subjects) at Teachers College, Columbia University (see Table IV)

From the data in Tables I-VI it is seen that the differences in forgetting from subject to subject are quite pronounced. Most broadly, this phenomenon may be attributed to the varying degree with which ego-threat was established from individual to individual.

Since the experimental group consisted of the three subgroups A, B, and C, the first question to be answered was whether these three groups were sufficiently alike to be treated

TABLE II

TABULATION OF RAW SCORES OF SUBJECTS OF EXPERIMENTAL GROUP B.

RECALL OF PLUS, MINUS, AND UNMARKED TITLES (18 TITLES:
6 MARKED PLUS, 6 MARKED MINUS, 6 UNMARKED)

Subject	Numbers and Per Cent of Forgotten Titles			Subject	Numbers and Per Cent of Forgotten Titles		
	+	N	-		+	N	-
B1	0 0%	0 0%	1 6%	B7	1 6%	1 6%	2 11%
B2	2 11%	4 22%	4 22%	B8	1 6%	2 11%	3 17%
B3	1 6%	2 11%	2 11%	B9	5 28%	4 22%	2 11%
B4	1 6%	2 11%	3 17%	B10	1 6%	1 6%	3 17%
B5	0 0%	0 0%	2 11%	B11	1 6%	1 6%	0 0%
B6	2 11%	0 0%	2 11%	N = 11	15 7.58%	17 8.56%	24 12.12%

as one. An analysis of variance used to compare the three groups yielded $F = 3.04$ (not significant at 5 per cent level), indicating that there was no significant difference among the three experimental groups. (See Table VII)

Treating subgroups A, B, C, then, as one group, the next more crucial question was whether there were significant differences of recall among the three categories of the +, —, and N* designated titles. $F = 6.80$ (significant at 1 per cent level) indicated that the difference among the three categories was significant, 117 minus-marked titles having been forgotten as against only 81 plus-marked and 90 unmarked titles. This result justified the assumption on which the study was based, namely, that

TABLE III

TABULATION OF RAW SCORES OF SUBJECTS OF EXPERIMENTAL GROUP C.

RECALL OF PLUS, MINUS, AND UNMARKED TITLES (18 TITLES:
6 MARKED PLUS, 6 MARKED MINUS, 6 UNMARKED)

Subject	Numbers and Per Cent of Forgotten Titles			Subject	Numbers and Per Cent of Forgotten Titles		
	+	N	—		+	N	—
C1	3 17%	3 17%	4 28%	C9	1 6%	4 22%	1 6%
C2	5 18%	1 6%	3 17%	C10	1 6%	5 28%	4 22%
C3	3 17%	0 0%	3 17%	C11	3 17%	3 17%	4 22%
C4	2 11%	4 22%	5 28%	C12	2 11%	1 6%	3 17%
C5	1 6%	0 0%	1 6%	C13	0 0%	3 17%	2 11%
C6	1 6%	4 22%	3 17%	C14	1 6%	1 6%	2 11%
C7	2 11%	2 11%	3 17%	C15	1 6%	3 17%	0 0%
C8	3 17%	1 6%	5 28%	N = 15	29 10.74%	35 12.96%	43 16.67%

* N signifies the unmarked titles.

any material could be made subject to forgetting. (See Table VIII)

In order to demonstrate this principle more clearly, group A's and group B's sequence of marking had been changed in group C. In groups A and B the stimulus sentences numbered 6, 8, 10, 11, 13, 16 had been marked minus and 1, 3, 5, 9, 14, 18 had been marked plus. In group C the stimulus sentences 4, 5, 7, 9, 13, 16 had been marked minus and 1, 2, 6, 10, 12, 18 had been marked plus. In order to test the hypothesis that a change in the position of markings does not yield a significantly different result, groups A and B were tested against group C. Using the analysis of variance method, $F = 1.58$ (significant at 5 per cent level) was obtained, indicating that there were no significant differences among the groups. The assumption, therefore, seemed justified that a change in markings did not produce any

TABLE IV

TABULATION OF RAW SCORES OF SUBJECTS OF EXPERIMENTAL GROUP X.

RECALL OF PLUS, MINUS, AND UNMARKED TITLES (18 TITLES:
6 MARKED PLUS, 6 MARKED MINUS, 6 UNMARKED)

Subject	Numbers and Per Cent of Forgotten Titles			Subject	Numbers and Per Cent of Forgotten Titles		
	+	N	-		+	N	-
X1	0 0%	3 17%	1 6%	X8	0 0%	2 11%	2 11%
X2	4 22%	3 17%	1 6%	X9	1 6%	2 11%	0 0%
X3	2 11%	1 6%	1 6%	X10	1 6%	1 6%	1 6%
X4	3 17%	4 22%	2 11%	X11	1 6%	2 11%	2 11%
X5	1 6%	1 6%	2 11%	X12	3 17%	1 6%	1 6%
X6	2 11%	1 6%	0 0%	$N = 12$	18 8.33%	25 11.57%	13 6.02%
X7	0 0%	2 11%	0 0%				

TABLE V

TABULATION OF RAW SCORES OF SUBJECTS OF CONTROL GROUP M.

HYPOTHETICAL RECALL OF PLUS, MINUS, AND UNMARKED TITLES
(18 TITLES: 6 MARKED PLUS, 6 MARKED MINUS, 6 UNMARKED)

Subject	Numbers and Per Cent of Forgotten Titles			Subject	Numbers and Per Cent of Forgotten Titles		
	+	N	-		+	N	-
M1	2 11%	4 22%	5 28%	M16	3 17%	4 22%	3 17%
M2	3 17%	0 0%	1 6%	M17	2 11%	2 11%	0 0%
M3	4 22%	3 17%	1 6%	M18	3 17%	2 11%	3 17%
M4	3 17%	1 6%	2 11%	M19	1 6%	1 6%	4 22%
M5	2 11%	1 6%	2 11%	M20	1 6%	1 6%	3 17%
M6	3 17%	3 17%	2 11%	M21	3 17%	1 6%	3 17%
M7	2 11%	2 11%	1 6%	M22	4 22%	5 28%	2 11%
M8	0 0%	3 17%	2 11%	M23	3 17%	3 17%	3 17%
M9	2 11%	0 0%	1 6%	M24	2 11%	1 6%	2 11%
M10	1 6%	0 0%	0 0%	M25	2 11%	3 17%	3 17%
M11	2 11%	5 28%	1 6%	M26	2 11%	2 11%	0 0%
M12	3 17%	3 17%	5 28%	M27	1 6%	1 6%	4 22%
M13	2 11%	1 6%	3 17%	M28	2 11%	2 11%	0 0%
M14	4 22%	1 6%	3 17%	M29	1 6%	1 6%	0 0%
M15	2 11%	3 17%	3 17%	N = 29	65 12.45%	59 11.30%	62 11.87%

TABLE VI

TABULATION OF RAW SCORES OF SUBJECTS OF CONTROL GROUP N.

HYPOTHETICAL RECALL OF PLUS, MINUS, AND UNMARKED TITLES
(18 TITLES: 6 MARKED PLUS, 6 MARKED MINUS, 6 UNMARKED)

Subject	Numbers and Per Cent of Forgotten Titles		
	+	<i>N</i>	-
N1	3 17%	1 6%	4 22%
N2	3 17%	2 11%	2 11%
N3	1 6%	1 6%	1 6%
N4	2 11%	2 11%	1 6%
N5	3 17%	1 6%	2 11%
N6	0 0%	2 11%	1 6%
N7	0 0%	1 6%	1 6%
N8	4 22%	1 6%	3 17%
<i>N</i> = 8	16 11.76%	11 8.09%	15 11.03%

significant change in the phenomenon observed. (See Table IX)

As explained earlier, control groups differed from the experimental groups only in that the control experiments had not introduced any markings. The next problem, therefore, was to find a method by which experimental and control groups could be compared.

In order to match the groups as closely as possible, control group M (29 subjects, all from Teachers College, Columbia University) was tested against the most comparable of the experimental groups, which was group A (23 subjects, all of Teachers College, Columbia University).

TABLE VII

HOMOGENEITY OF EXPERIMENTAL GROUPS A, B, AND C: ANALYSIS OF VARIANCE,
EACH GROUP COMPARED WITH THE OTHER AS TO SIMILARITY IN DIFFERENTIAL
RECALL OF PLUS, MINUS, AND UNMARKED TITLES (18 TITLES:
6 MARKED PLUS, 6 MARKED MINUS, 6 UNMARKED)

<i>Group</i>	<i>N</i> (<i>Subjects</i>)	<i>Number and Per Cent of Unrecalled Titles</i>		
		<i>+</i>	<i>N</i>	<i>-</i>
A	23	37 8.94%	38 9.18%	50 12.32%
B	11	15 7.58%	17 8.56%	24 12.12%
C	15	15 10.74%	17 12.96%	24 16.67%
<i>Source of Variation</i>	<i>Degrees of Freedom</i>	<i>Sum of Squares</i>	<i>Mean Square</i>	<i>F</i>
Columns of +, N, - marked titles	2	11.6569	5.8285	3.0362
Error	138	264.9100	1.9196	

5 per cent level of significance. The hypothesis of the homogeneity of experimental groups A, B, and C is affirmed.

TABLE VIII

DIFFERENTIAL RECALL OF PLUS, MINUS, AND UNMARKED TITLES: ANALYSIS OF
VARIANCE, EXPERIMENTAL GROUPS A, B, C TREATED AS ONE UNIT
(18 TITLES: 6 MARKED PLUS, 6 MARKED MINUS, 6 UNMARKED)

<i>Group</i>	<i>N</i> (<i>Subjects</i>)	<i>Number and Per Cent of Unrecalled Titles</i>		
		<i>+</i>	<i>N</i>	<i>-</i>
ABC	49	81 9.19%	90 10.20%	117 13.25%
<i>Source of Variation</i>	<i>Degrees of Freedom</i>	<i>Sum of Squares</i>	<i>Mean Square</i>	<i>F</i>
Columns of +, N, - marked titles	2	14.3265	7.1633	6.8040
Between Rows (individuals)	48	176.4217	3.6755	3.4902
Error	96	101.0068	1.0522	

1 per cent level of significance. The hypothesis of the significance of differences between minus, plus and unmarked title recall is affirmed. The hypothesis of the individual differences of recall is affirmed.

TABLE IX

DIFFERENCE OF RECALL OF PLUS, MINUS, AND UNMARKED TITLES WHEN THE ORDER OF MARKINGS IS REVERSED: ANALYSIS OF VARIANCE, EXPERIMENTAL GROUPS A, B WITH REGULAR SEQUENCE OF MARKINGS AND EXPERIMENTAL GROUP C WITH CHANGED SEQUENCE OF MARKINGS (18 TITLES: 6 MARKED PLUS, 6 MARKED MINUS, 6 UNMARKED)

Group	<i>N</i> (Subjects)	Number and Per Cent of Unrecalled Titles		
		+	<i>N</i>	—
AB	34	52 8.60%	55 8.99%	74 12.09%
C	15	29 10.74%	35 12.96%	43 16.67%
Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	<i>F</i>
Columns of +, N, — marked titles	2	11.8703	5.9425	1.5806
Error	141	265.0142	1.8795	

5 per cent level of significance.

The hypothesis that a change in sequence of markings does not correspond to a change in the manifested differential forgetting is affirmed.

Three steps were necessary in order to arrive at a basis for comparison:

1. In group A (experimental), the algebraic differences between number of plus titles and number of minus titles recalled were calculated for each subject. This furnished a series of scores with a possible range from +6 (all the plus-marked titles remembered, none of the minus) to -6 (all the minus-marked titles remembered, none of the plus).

2. For each individual in group M the same title-story-stimulus-sentence that had been marked minus or plus in group A was assumed, for purposes of comparison, to have been marked minus or plus in an identical way. By virtue of this assumption, scores analogous to those calculated for group A could be calculated for each individual. Since no real experimental difference had existed for the recall of any of the titles for the individuals

TABLE X

THE INFLUENCE OF THE PRESENCE AND ABSENCE OF THREAT: ANALYSIS OF VARIANCE OF DIFFERENCE IN RECALL. THREAT MATERIALIZED (EXPERIMENTAL GROUP ABC). THREAT DID NOT MATERIALIZE (EXPERIMENTAL GROUP X).
(18 TITLES: 6 MARKED PLUS, 6 MARKED MINUS, 6 UNMARKED)

<i>Group</i>	<i>N</i> (<i>Subjects</i>)	<i>Number and Per Cent of Unrecalled Titles</i>		
		<i>+</i>	<i>N</i>	<i>-</i>
ABC (threat)	49	81 9.19%	90 10.20%	117 13.25%
X (not threatened)	12	18 8.33%	25 16.30%	13 6.02%
<i>Source of Variation</i>	<i>Degrees of Freedom</i>	<i>Sum of Squares</i>	<i>Mean Square</i>	<i>F</i>
Columns of +, N, - marked titles	2	9.1380	4.5690	2.6765
Error	176	319.1764	1.8135	

5 per cent level of significance.

The hypothesis of the difference of recall when threat seemed to materialize as against an experiment where threat presumably failed to materialize is not affirmed, though it contains some possibility of affirmation.

of group M, the difference between the assumed plus and the assumed minus recall was expected to be closer to zero.

3. The difference of plus and minus recall for group A could now be compared with the difference of assumed plus and assumed minus recall for group N. Arrayed in a frequency curve, the differences of recall of group A showed a comparatively wide spread. The same kind of curve constructed for the differences of assumed plus and assumed minus recall for group M had very little spread. The two curves, compared as to fit, yielded a *t* value of + 2.01 (significant at 5 per cent level), indicating that there was a significant difference between groups A and M with regard to the differences in plus and minus recall. (See Table X)

The assumed "optimal conditions" of the experiment were

TABLE XI

DIFFERENCE IN RECALL WHEN THREAT MATERIALIZED, EXPERIMENTAL GROUP A,
AND WHEN THREAT DID NOT MATERIALIZE, EXPERIMENTAL GROUP X.
ANALYSIS OF VARIANCE (18 TITLES: 6 MARKED PLUS, 6 MARKED
MINUS, 6 UNMARKED)

Group	<i>N</i> (Subjects)	Number and Per Cent of Unrecalled Titles		
		+	<i>N</i>	—
A	23	37 8.94%	38 9.18%	50 12.32%
X	12	18 8.33%	25 11.57%	13 6.02%
Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	<i>F</i>
Columns of +, N, — marked titles	2	20.5231	10.4602	24.5886
Error	104	47.2400	0.4543	

1 per cent level of significance.

The hypothesis of the difference of recall when threat seemed to materialize as
against an experiment where threat presumably failed to materialize is affirmed.

TABLE XII

THE DIFFERENTIAL EFFECT OF PRESENCE AND ABSENCE OF THREAT: SIGNIFICANCE
OF DIFFERENCE OF MEAN OF GROUP A WITH TITLES MARKED PLUS AND
MINUS AND MEAN OF GROUP M WITHOUT MARKINGS (18 TITLES:
6 MARKED PLUS, 6 MARKED MINUS, 6 UNMARKED)

Group	<i>N</i> (Subjects)	Number and Per Cent of Unrecalled Titles		Mean	Standard Deviation	<i>t</i>
		+	—			
A (repressive conditions)	23	37 8.49%	50 12.32%	.5652		2.0137
M (no re- pressive con- ditions)	29	65 12.45%	62 11.87%	.2064		

5 per cent level of significance.

The hypothesis of the differential effect of presence and absence of threat is
affirmed.

selected with the aim of permitting the ego-threat to exert a maximum influence. Whether these "optimal conditions" were really optimal, vital, and above all, crucial to the creation of differential forgetting was involuntarily tested in an experiment which started out as a failure. One group, called X, submitted to the regular experimental procedure, had failed to demonstrate any differential forgetting. The conclusion was that either the experimental assumption was wrong or special conditions had affected the experiment. A survey bore out the latter conclusion. The subjects of group X were in many ways exceptional and very different from the subjects of the other groups, the essential distinction being that no adequate threat could be posed for subjects in group X. (See page 47)

When group X was tested against experimental groups A, B, and C by the analysis of variance method, $F = 2.68$ (significant at 5 per cent level) missed significance by only 0.3. This result, though statistically not conclusive, nevertheless indicated that the groups probably were different. This suggested difference would tend to indicate that the conditions assumed to be important elements in the creation of repressive forgetting have some validity. (See Table XI) This assumption is further strengthened by another statistical finding. Group A, the largest and most representative of the experimental groups, was tested against group X by analysis of variance. Here the difference was very pronounced, $F = 24.57$ (significant at 1 per cent level) giving added weight to the above assumption. (See Table XII)

CHAPTER V

The Results of the Study

THIS study set out to demonstrate that repressive forgetting could be experimentally provoked and quantitatively measured. Two questions may be raised at this point:

1. To what extent does the experiment succeed or fail in its purpose?
2. Have any significant data or evidences concerning the process of repression been uncovered?

While statistical treatment of the results justifies the assertion that differential forgetting has been provoked, no proof is offered that differential forgetting is identical with repressive forgetting. Here further investigation is necessary.

The differential forgetting of the titles is attributable mainly to the introduction of the fictional ratings and the resulting reactions of the subjects. If it can be assumed that the steps leading to the introduction of the ratings and the ratings themselves are identical with conditions under which the individual is forced to repress material, then the assertion is warranted that the demonstrated differential forgetting is in large measure identical with repressive forgetting.

It now becomes necessary to review, step by step, the conditions creating differential forgetting, in order that these steps may then be compared with the conditions which assumedly create repressive forgetting. The steps taken and the assumptions underlying them will be discussed under five theoretical assumptions.

GROUP CHARACTERISTICS FAVORING THE EXPERIMENT

The subjects chosen had some knowledge of general psychol-

ogy. They were enrolled in courses dealing with an introductory study of personality. In general, the subjects were only slightly familiar, if at all, with such concepts as projection or repression. Group A in this respect was the most, group C the least, sophisticated. In group A, over half the subjects had some familiarity with the concept of projection; in group C, only two out of twelve subjects.

It was assumed that subjects with this background not only would be interested in participating in such an experiment, but would be, or could be made to be, concerned about the results. A more technically informed group not only might have seen through some vital aspect of the experimental design, but also might have been too test-wise. It was hoped, too, that the subjects, who had just begun their study of personality, might identify some of their own feelings and thoughts with the subject matter they were about to study. This process frequently created apprehension and tenseness which the experimenter intended to use to advantage.

Informal discussion with subjects of the various groups confirmed the impression that the combination of some knowledge and nonsophistication was fairly uniform throughout the groups.

The experiments were carried through in small classes. Because of the relative intimacy of the group, a more personal relationship was established among instructor, experimenter, and subjects. This relationship, consequently, was intentionally used to increase the undesirability (in the student's opinion) of a negative rating.

INDIVIDUAL CONFLICT PROVOKED IN THE EXPERIMENT

Before and after the subjects wrote their stories, great care was taken to make them conscious of the phenomenon of projection. They were indirectly impressed with the idea that their stories might project some very significant personality characteristics.

An individual normally wants to conform as closely as possible to the wish and dream-picture he has of himself. This

ego-ideal is formed by the individual's desires and needs. He also wants to be regarded by his environment as being as close to his ego-ideal as possible. In general, the individual dislikes and fears any indication that parts of his personality differ considerably from his own ego-ideal. Unacceptable personality traits, opposed to the ego-concept, must be prevented from becoming known to the environment, as they are often considered by the individual to reveal weakness and vulnerability. Their revelation is fraught with possible danger.

Still another reason to fear revelation of personality characteristics is the factor of social taboos. The whole area of sex, for instance, can only be admitted by the individual to himself within the restrictions and inhibitions enforced by the culture. Impulses in the area of sex which transgress the threshold of what the individual feels is permitted are feared and often create considerable anxiety. Although he may accept many of his own sexual impulses not accepted by his society, the normal individual will guard carefully against any possibility of these impulses becoming known to his environment. Ego-satisfying motives may be socially acceptable, but many of our innermost drives, desires, and needs are not. An individual, for example, believes that, according to his ethical and moral standards, he should not compete with his best friend, whom he envies, for material goods and the social position his friend has attained in life. Although this feeling is not acceptable to the individual, he is prompted to compete with his friend; he desires strongly to surpass him. He cannot accept his feelings of rivalry and envy. The individual may still admit his thought to himself, but he would greatly fear his thought becoming known to his friends, and especially to the one friend in question.

Every individual rather fears *unguarded* revelation of certain facets of his feelings and thoughts. The emphasis upon the word "unguarded" is meant to imply a constant vigilance on the part of our personality which guards us against the revelation of such motives, wishes, desires, and needs not accepted by our ego-ideal.

The threat which projective stories present is that they may reveal aspects of the subject's personality against his conscious intentions or will.

The subjects were told that their stories would be rated by a board of three, consisting of the experimenter, their own instructor, and an anonymous reputable psychologist. The inclusion of the instructor among the raters might be interpreted as an important factor in yielding differential forgetting, because of the subject's fear of being identified. This objection can easily be discounted, as the subjects were certain that their anonymity was protected. When groups B and C were interrogated, only two of the subjects thought that their identity might be known to the instructor. The use of the instructor as a rater helped to a great extent in adding prestige-value to the ratings.

Since the subjects were convinced of complete anonymity, thereby negating fear of the instructor as a rater, it would seem that the only factor responsible for differential forgetting was an attitude, or frame of reference, of the subject toward himself.

THE "THREAT" DEVELOPED IN THE EXPERIMENT

The step in which each subject was asked to rate the paper of a co-subject increased the accumulated tension, and probably created further insecurity. By going through the experience of rating, the subjects were led to discover indications of the projections in the stories they read. In their attempts to indicate traces of unbalance, they were, in general, rather liberal with the annotations "signs of unbalance." One subject rated fifteen out of eighteen stories as indicative of severe unbalance. (Parenthetically, it may be stated that the experimenter found it extremely difficult to judge any of the stories according to the criterion of balance.) Only four out of forty-nine subjects indicated that they were not competent to judge balance. Presumably many of the subjects, at this point, were wondering about the transparencies of their own stories. Did they contain as many projections as the stories they had just rated? Were

the projections as easily detectable? Had they been detected? How many stories had been considered "unbalanced" by the board of experts?

Some of the subjects made the following comments:

After I read the stories you gave me, I was not so sure about my own.

Gosh, the case you gave me to read—that fellow, or was it a woman?—well, he had quite a few problems. Probably I am no better. Ha! Ha! [Comment punctuated with forced laughter.]

Gee, I'm sorry, but I misunderstood. I didn't know that we were supposed to write this kind of story. I hope you don't misunderstand.

I knew you wanted us to project. I was very careful not to project anything. I took my time.

It has been pointed out that most individuals, at one time or another, doubt their own stability and balance. This step was intended to fix in the mind of each subject a question of personal balance and the fear that one's lack of balance might be discovered.

THE INDIVIDUAL'S REACTION TO THE THREAT

It was astonishing how often subjects commented, "I knew it," when they were finally shown the stories and discovered those marked minus. They were often annoyed and asked angry questions. Other subjects smiled in a rather superior way. Few subjects perceived consciously that a significant emotional process had taken place when the marked story titles were revealed to them. Only one of the twenty-two subjects this experimenter tested personally indicated that he had felt some emotional disturbance of any consequence as the result of having been shown the stories and their markings.

The emotional disturbance became more evident when, on attempting to memorize the titles, many of the subjects complained about unusual learning difficulties. This phenomenon was rationalized by the subjects in numerous ways, as follows:

This just isn't my day.

It's silly the way this one title always escapes me.

I'm very susceptible to noise. It is too noisy in here.

I'm no good when I have to learn things under pressure.

I hate to memorize things.

Seven members of group A (23 subjects) returned after the learning session with rather marked signs of disquietude. Typical were such indications as incoherent attempts to explain away inadequacies in learning the titles, special attempts to impress the experimenter favorably by engaging in discussions of other topics, and similar efforts at leaving behind an impression designed to counteract any unpleasant residual connotations felt to have been conveyed by the stories written. Two of these subjects had to be told that the ratings had been faked, and subsequently their participation in the experiment had to be discontinued. The reaction to the learning step was so strong in the testing of group A that this part of the procedure was slightly amended in giving the test to the subjects in groups B and C.

In facing the experimenter and being shown his markings, each subject seemed to experience a mixture of feelings of varying intensity. It must be strongly emphasized that although most subjects were tense, the cause of the tenseness varied from subject to subject.

What had happened to create so much emotional response? When the markings were shown, the subjects reacted to them in two ways. One reaction was overt and observable; the other can only be a matter of conjecture and assumption.

The subject's first reaction often was an attempt to understand, to rationalize away overtly, the minus markings. The following questions and comments were interpreted as signs of this attempted rationalization:

Why does this story show unbalance?

I wrote these when I was temporarily upset by something.

Can it be that this happened because I wrote these stories in a great hurry?

How did I make out in comparison with other people?

One subject (a Ph.D. in psychology) kept exclaiming every time she saw a minus marking: I knew it; I knew it. Oh, how clear!

The purpose of these rationalizations will be made clear in the next paragraphs.

The second conjectural reaction which took place is too delicate and complex to analyze. The subjects were confronted with the rather impressive evidence of imperfect personality balance. Rationalizations brought some immediate relief, but the influence of the minus markings on the subject's self-evaluation of his adjustment was too great to be dealt with on this level. Despite all attempts at evasion, some subjects experienced discomfort, others anger, and most of them shared a general feeling of insecurity. In order to keep a proper balance within themselves, the subjects had to take issue with the markings, the feelings provoked by them, and the resulting implications for personality unbalance.

Some thought must be given to the nature of the insecurity created by the markings. Though the immediate cause is that the individual's security is threatened by indications of lack of balance, the issue created by this obvious problem is actually a major one.

The view is held here that every individual's personality contains many sources of insecurity, the possibilities, variations, and causes being literally countless. To the sources of insecurity arising from an individual's personality must be added those of a social, religious, racial, and economic character. These various causes of human insecurity do not maintain an isolated existence within the individual. Like all other parts of the personality, they are interconnected and exert a distinct influence on one another. A feeling of inadequacy created by one incident is likely to intercommunicate with other potential areas of insecurity, thus creating considerable anxiety. Other problems and complexes interconnected with any specific issue of inadequacy, far more dangerous to the individual's personality, may be aroused and threaten to appear in awareness. It is to avoid such an eventuality that the personality must deal immediately and adequately with any specific issue potentially capable of setting off an emotional chain-reaction within the individual.

The minus markings meant a potential danger for many of the subjects. As a consequence the subject's personality required a mechanism to cope with the immediate problem. One such mechanism, used rather frequently to deal with disturbing material, is the elimination of the material from awareness. This thrusting out of awareness is followed by an elimination of the material from availability for recall. The exact psychological and physiological conditions under which elimination takes place are still unknown to us.

It is this very process of elimination from awareness and prohibition of recall which appeared to take place at some time between the learning process and the time of recall.

MANIFESTATION OF THE THREAT-REACTION

The subjects did not know they were going to be called upon for another interview after the learning session. For most of them the task of recall came as a complete surprise. Only three subjects in group B and C suspected that they might be required to recall the titles. Two subjects, one from group A and another from group C, came to the experimenter and explained that they had invalidated the experimental conditions. Angered by their slow learning, they attempted to memorize the titles after they had gone through the one recall with the experimenter. These two cases were eliminated from the experimental group. (The two subjects recalled all the eighteen titles. One of the two later admitted that she was so annoyed by her learning difficulties that she repeated the recall of the titles several times in order not to forget them.)

When at the time of recall the experimental group as a whole demonstrated significantly less recall for the minus part of the material than for the plus and neutral part, the important problem of individual differences had to be considered.

If we can accept the validity of the assumption that the subjects need to eliminate the minus-marked material as threatening, it should also be expected that they will forget all the six minus-marked titles. This did not occur. Some of the subjects did not demonstrate any differential forgetting. Some forgot

less of the minus material than of the plus and neutral material.

It was emphasized earlier that each individual reacted differently to an ego-ideal threat. To an individual with a very high security level, the threat of the minus material may well have been a minor one. There was no need, therefore, to eliminate the material, to which this subject was as indifferent as he was to the non-marked. Another individual may have rejected projective techniques to such an extent as to deny the validity of the minus markings. Still another individual, having major areas of insecurity, may have learned how to accommodate himself to them and thus have achieved some measure of balance. He, too, may have reacted to the markings to a lesser degree. The individual reasons accounting for the absence of differential forgetting are indeterminate. One of the subjects who demonstrated no differential forgetting was asked by the experimenter whether she had been impressed by the markings. She answered: "Oh, that! I didn't even notice them. I'm a teacher. I don't believe in this kind of stuff." Another said: "I was in such a hurry that day; nothing mattered but getting it over with."

Much of the evidence accumulated in this study is of necessity a matter of conjecture, yet some general phenomena become discernible through the haze of assumptions. It is only by investigating whole groups that the phenomenon of differential forgetting becomes clearly evident. The fact that individuals, in general, have a tendency to react to certain occurrences with differential forgetting has been demonstrated.

The steps and processes assumedly creating differential forgetting may now be summarized as follows:

1. Subjects, selected according to certain criteria, were made to feel a direct personal interest in their markings.
2. General apprehensiveness and tension, even anxiety, were created by various means in order to make the subjects eager to discover their markings. It was suggested that certain of the markings might reveal unbalance.
3. The subjects were faced with symbols designating un-

balance, which represented a threat, or in more general terms, a fact unacceptable to them. Further unacceptability was suggested by the fact that the insecurity created by the material might be interconnected with earlier, deeply ingrained systems of complexes or insecurities. The situation thus created elicited an urgent reaction to deal with the problems.

4. One of the frequent ways to deal with disturbing material was elimination. The individual often makes use of this process in differential forgetting.

The conditions of this study, which assumedly created differential forgetting, must be compared with the definitions of repressive forgetting, stated earlier, in order to evaluate to what degree the two are identical. Page 15 of this study reads as follows:

Repression will occur under conditions when there are:

1. Ideas damaging to the ego (concept of self) of the individual.
2. Promptings which are in disagreement with the individual's own moral, cultural, and social concepts.
3. Material associated with conflicts which are anxiety and guilt creating.

The first criterion for repressive forgetting seems to have been met adequately in Step Two (page 45) of the experiment. The second criterion was of lesser importance in this study, although its presence can be felt all through the experiment. In a more fundamental analysis of the experimental conditions, it can be argued that the unacceptability to the individual of being "unbalanced" is in many respects the fear of being outside the social norm, of having inadequate control over the self. The third criterion was strongly represented in Steps Three and Four.

It is felt that the various steps undertaken to create differential forgetting contain all the elements as outlined in the definition of conditions creating repressive forgetting. It therefore seems permissible to assume that repressive conditions are the cause of differential forgetting in this experiment.

A deeper insight into the conditions of repressive forgetting

was obtained in the experiments with group X. The failure to obtain the "normal" results posed the question: To what causes could the failure be attributed? The information obtained as the result of this failure tended to reaffirm the experimental hypothesis.

The members of group X were very test-wise. When asked whether they had suspected that they would have to recall the titles, seven out of the twelve subjects answered in the affirmative. Five out of the twelve declared they had thought all the time that the ratings were not quite genuine. Some even indicated that they had suspected the pseudo-character of the markings.

The psychological attitude of the subjects toward the experiment was also significant. In a discussion at the end, they voiced strong criticism against the various hypotheses of the experiment. They felt that the phenomenon of projection lacked sufficient confirmation to warrant its genuine scientific exploration. Their interest level in the experiment was markedly low. There was a minimum of intergroup feeling, as the class from which this group was recruited comprised over 200 students. Finally, the ratings were received by the subjects as carrying little weight or authority. They were wholly indifferent toward their own instructor, whose rating, therefore, was insignificant to them. Contrary to his experience in other groups, the experimenter himself was not accepted as an authority whose judgment would be unquestioned.

For the reasons indicated, an atmosphere which forced the subjects to face the possibility of unbalance was only partially realized. The subjects could find avenues for rationalizing their fears and uncertainties or for avoiding facing the experimental issue altogether.

This phase of the experiment attempted to make group X reliably different from other groups by subtly altering some of its inner propensities. Despite great care to fulfill these conditions, however, group X in many respects overlapped the other groups. This overlapping accounts only in part for the inadequacy of the significance of differences between groups A, B, C,

and X. Another important factor influencing the statistical evaluation is the complete reversal of position of the unmarked titles. In experiment ABC the minus-marked titles were least remembered, while in experiment X they were most remembered. The plus-marked titles were equally well remembered in both experiments. When the recall of the unmarked titles is omitted, the fact becomes clear that the differential recall observable in experiment ABC had disappeared in experiment X. In this light it becomes evident that the experiment tends to prove the validity of the statements originally formulated: (1) under the given conditions of experiment X, the minus threat would fail to materialize; and (2) the minus material would be as well recalled as the plus material. The result showed that unmarked titles, lacking any emotional emphasis, were most forgotten. The latter development has been demonstrated in many previous studies, which show results similar to those found in experiment X.

When in the present experiment repressive reactions failed to materialize, the causes may be attributed to three main reasons:

1. The subject's ego has strength and structural balance and the minus markings are inadequate to produce the necessary threat.
2. The subject's ego experiences the threat implied by the markings but develops strong mechanisms for coping with the situation, chief among these being rationalization and hostility projected toward the experiment and the experimenter to ward off the threat.
3. The subject's ego would have experienced the threat but special circumstances at the time of the experiment prevented its development. Preoccupation with other problems and events might have had at the time a greater significance to the individual.

The above findings permit the formulation of this tentative hypothesis: When subjects are not made to face the disparity between their ego-ideal and their own actions which deviate from this ego-ideal, the need for repressive devices is non-

existent. The threat coming from the minus material will not materialize and, consequently, differential-repressive forgetting will not occur.

This experiment, although performed under what may be considered scientific conditions, must be viewed with some reservation. It was stated earlier that the stimulus-sentence-story-title units were free of all repressive propensities except the one carried by the minus sign and the resulting implication. This assumption does not prove true all the way. Some of the subjects' stories carried special connotations, carry-overs from daily life, which were definitely subject to repressive forgetting. How these connotations, in spite of the intrapersonal watchfulness against unguarded revelation, had penetrated into the stories is a problem which cannot be treated in this study; but the fact is that it happened. It is best illustrated perhaps in the case of a female subject, who, during the learning phase, could not recall the eighteenth title after the eleventh repetition, and the experiment had to be discontinued. To explain her tension, she offered the experimenter the information that she had to make up her mind about being married in a few days and was unable to decide. The eighteenth title which had consistently eluded her was, interestingly enough, "The Fateful Decision."

Although there were similar indications that individual repressions occurred, it is felt that they do not invalidate the experimental results. These specific repressions are evenly distributed over all the experimental categories in accordance with expected probabilities.

Another source of experimental error may be the factor of overlearning, but this, too, can be discarded because of the probable normal spread of overlearned titles over all the categories.

The results of this study encourage the opinion that psychological concepts which have resisted scientific experiments can be successfully approached and that differences in definition are not an insurmountable obstacle in experimental psychology.

CHAPTER VI

Summary

THE conditions for repressive forgetting as seen by two different schools of thought were stated, and a common denominator for both definitions was found.

An experiment was set up to create conditions leading toward differential forgetting.

Three groups comprising forty-nine individuals took part in the experimental phase of the study. Each of the subjects was given eighteen stimulus sentences which he enlarged into eighteen short stories. To each story he gave a title. The subject then was made to believe that six among the eighteen titles indicated lack of balance in his personality (minus), and six other titles indicated good personality balance (plus). Six of the titles were left unmarked. The subjects were induced to learn the eighteen titles to one perfect recall. Four days later the subjects were asked to recall as many of the titles as they could remember.

Results: Significantly more minus titles were forgotten than plus titles or those left unmarked.

A control experiment was performed under conditions exactly identical with those of the first experiment, with the omission of the markings and the implied threat to the security of the individual.

The previous result was reinforced by the very fact that here no differential forgetting occurred. Forgetting for the plus- and minus-marked titles was close to identical.

The various steps leading to differential forgetting were discussed, and the conclusion was reached that the causes for differential forgetting were identical with those hypothetical conditions activating repressive forgetting. Most significant in

this connection was the notion that it is actual ego-threat and not merely subjective unpleasantness which lies at the root of repressive forgetting. It was furthermore concluded that the experiment had succeeded in creating repressive forgetting experimentally.

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Appendix

A. STIMULUS SENTENCES

The following are the stimulus sentences in the order they appeared in the test.

1. What a wonderful day it has been.
2. He took the child on his knees and said:
3. Both of them were rather handsome people.
4. They looked at each other but no word was said.
5. The kid did not dare to say anything.
6. "7 miles to the next village," the sign said.
7. "This is a silly way to do things," the old man shouted.
8. She asked herself: Did she really like him?
9. He was a serious man; all about him was serious.
10. Barely were they gone when people started to talk.
11. After four years in the army, one could not go back to it.
12. The girl was tall, pretty, and friendly.
13. The teacher said the last words and the class was impressed.
14. Mother did not like that at all.
15. Nothing counted here but money, money, money.
16. All of them laughed and enjoyed the situation.
17. Many times this thought came back into her mind.
18. He looked at his wife and smiled.

B. DIRECTIONS ACCOMPANYING STIMULUS SENTENCES

Name:

No.

Directions: Each sentence is the beginning of a little story. You read the first sentence and finish the story the way you feel it should end. Do not use more than three or four sentences for each story. After you have finished a story, give it a short title, not longer than *three* words. *Be sure to give each story a title.*

Example:

He moved in his sleep and then it was quiet again in the room. *She watched his sleep and she was happy.*

Title: *Sleep, My Love*

1. What a wonderful day it has been.

Title:

2. He took the child on his knees and said:

Title:

3. Both of them were rather handsome people.

Title:

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4. They looked at each other, but no word was said.

Title:

5. The kid did not dare to say anything.

Title:

6. "7 miles to the next village," the sign said.

Title:

7. "This is a silly way to do things," the old man shouted.

Title:

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8. She asked herself: Did she really like him?

Title:

9. He was a serious man; all about him was serious.

Title:

10. Barely were they gone when people started to talk.

Title:

11. After four years in the army, one could not go back to it.

Title:

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12. The girl was tall, pretty, and friendly.

Title:

13. The teacher said the last words and the class was impressed.

Title:

14. Mother did not like that at all.

Title:

15. Nothing counted here but money, money, money.

 Title:

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16. All of them laughed and enjoyed the situation.

 Title:

17. Many times this thought came back into her mind.

 Title:

18. He looked at his wife and smiled.

 Title:

PLEASE CHECK WHETHER YOU FORGOT TO "TITLE" ANY OF THE STORIES.
 BE SURE EACH TITLE HAS *THREE* WORDS—NOT MORE, NOT LESS.

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